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Although this was the largest number of Phalaropes observed, smaller flocks were noted on the lake for about ten days, seventy or more being found in the cove of the Ruddies the middle of August. A small band was discovered one afternoon when the lake was lovely with the reflection of blue sky and creamy clouds, the spirit-like Phalaropes swimming around among the mirrored clouds.

So many rare pictures were exhibited in this lake region, alive with water-fowl and with its swift alternation of sun and cloud, its broad mirror and its resplendent sunsets whose canvas hung to the level prairie horizon, that it was difficult to say which was the most beautiful; but two striking pictures stand out from among them. One was of a sunset when, with a clear sky above, three great thunder head masses of creamy cloud stood out on the horizon—northeast, east, and southeast. One mass with concave, shell-like salmon and pink interior suggested the Flight from Pompeii, the robe drawn protectingly high above the heads of the tender fleers. While no storm came from the thunder heads, lightning played over their salmon surfaces, and the sunset as it grew, painted them with delicate tints of cyanic pink and blue.

In the other sunset, the west showed the clear red tone which is a familiar home-like background; but in the east, horizontal parallel lines of gray blue cloud carried the mind far out over the ocean. Then gradually the warm tones spread from the west by roseate slanting scorings till, growing rich and ragged, the color passed on, softly permeating the gray blue of the east, producing exquisite color harmonies on the face of this cloud-born ocean.

*(To be continued)*

## NOTES ON THE LIMICOLAE OF SOUTHERN BRITISH COLUMBIA

By ALLAN BROOKS

THESE NOTES were inspired by Mr. J. H. Bowles' paper on "The Limicolae of the State of Washington" (*Auk*, vol. xxxv, 1918, pp. 326-333). No group of birds has been so neglected by the ornithologists of the western states prior to the last ten years or so, and the paper cited is the best evidence of the increase of interest in these fascinating birds.

In the notable work on "The Game Birds of California", recently published, the authors deal in full with all the shorebirds known to occur in that state; and the impression to be gathered is that they consider the state to have been fairly exhaustively worked. With all deference, it would seem to the present writer that a great deal of work is still needed to bring the records of the Limicolae up to anything like the standard of those of the birds in all the other orders. If a few collectors and observers of the caliber of Mr. R. H. Beck could work the coast-line and inland waters of California as Beck worked the waters off Monterey, not only would a number of species now considered scarce be proved to be of regular occurrence, but several species would be added to the state list, and in all probability stragglers from Asia would add species to the North American list.

Of the species to be added to the Californian list the Semipalmated, Stilt,

Eastern Solitary and Buff-breasted sandpipers are all bound to occur, and only need looking for; while the Aleutian and Sharp-tailed sandpipers, and Asiatic Golden Plover, which have been taken frequently along the coast to the northward, might also be expected.

As to the many stragglers which might drift over from Asia, one has only to compare the lists of those now known to occur on the Atlantic and Pacific seaboards to see the possibilities. On the Atlantic a large percentage of the Old World species has occurred; even such a bird as the Ruff, which does not go far to the north, has occurred more than once. On the Pacific, despite the fact that a large number of species of Asiatic shorebirds are not only of regular occurrence in Alaska, but in many cases have bred there, comparatively few extralimitals have been recorded farther south. Many of these Asiatic-Alaskan species must straggle down the American coast every year, while others that breed in Siberia may easily make a similar mistake. Of the latter, such species as the Thick-billed, Broad-billed, Temminck, and Terek sandpipers, Least Curlew, and many others may at any time be expected to turn up on the American coast, as well as many of the species that have already made the trip across the North Atlantic.

An important factor which has helped to establish the long list of extralimitals on the Atlantic coast is the shorebird shooter with his decoys. On the Pacific, except in a few localities, shorebirds with the exception of Wilson Snipe, are not considered game birds; and while I hope this condition will always continue to exist, chances to make new records are greatly diminished in consequence.

Too few ornithologists have really grasped the situation that obtains among the far northern-breeding shorebirds, caused by their amazing migratory instinct. While most birds are still busy with their nesting duties or comfortably molting into their fall dress, Limicolae from thousands of miles to the northward are driving through on their way to the Southern Hemisphere. July is the best month for them in southern British Columbia; by the middle of August the majority have passed. Dr. L. B. Bishop, writing to me of the conditions in the Dakota region, considered that by the end of *June* the majority of the adults of a number of species breeding far to the north had passed south. It is very hard to reconcile such facts with the conditions the birds have to contend with in the Arctic.

I think this early southward movement accounts for the fact that so many species are overlooked. The collector at that time, if collecting along the shore at all, is busy with the juvenal plumages of the marsh-breeding birds, and the silence is frequently broken by the little crack of his "aux". Now this will not suit the highly nervous Sandpipers just in from a three hundred mile flight, and at the first crack they are off—to add another few hundred miles to their southward journey. Shorebirds must be especially looked for, and looked for continuously. The accepted theory is that they travel at night, but my experience, which I hesitate to record, is that the bulk of the migration of these birds is by day, from soon after daylight to some time in mid-afternoon, just the period that most collectors are out. The birds are then high overhead, and what should be looked for is the sudden change of wind (they travel with a beam wind) or a big storm which drives them down to localities they are not usually found in. Such chances as these may occur only once in a season—or in years.

Added to this, the whole family seems to suffer from "nerves" to an extent not found in any other class of birds; the little chaps that trot around your feet one day, are quite unapproachable the next, and all this means a lot of patience in the man who would study them. To the bird observer who does not collect, their identification is attended with many difficulties. Even with species that I am very familiar with I find myself making frequent mistakes after a good observation of the bird through an eight-power glass. Size is the most deceptive thing, especially on a smooth beach or mudflat; several times I have been quite positive of the identity of one of the Yellow-legs only to find on taking the bird that it was the other species. Similarities that are patent in the cabinet, are not nearly as evident in the field, and many peculiarities of pattern that are conspicuous in life, disappear when the bird is in the hand.

So, however averse one is to taking life, the only positive record in most cases entails the taking of the bird. The following incident will illustrate how easy it is to make errors.

A few years ago, one day in early July, I saw, on the shore of a little pond in Okanagan, an adult Least Sandpiper closely followed by a downy young a few days old. The actual parent of this was making a small demonstration on the opposite shore a hundred yards away. Yet how easily this might have been taken for a conclusive record of the breeding of the Least Sandpiper in this locality.

In my own observations I have always been handicapped by not being in a really good locality, or else too far away from the best grounds. To get good results one should almost live on the ground. The ideal place for rare records is not the large extent of mud flats or shore, but a limited area presenting good feed possibilities on an otherwise unsuitable stretch of coast-line. Such a place can be intensively worked.

Here in Okanagan the conditions are not at all favorable, being limited to a few hundred yards of too-clean shore, and some alkaline ponds at about 1000 feet higher elevation. Yet this district has yielded some twenty-four species, some of which have not been taken in any of the states west of the Rocky Mountains. The following list is intended to be considered in conjunction with Mr. Bowles' excellent list of the Washington Limicolae.

I have added a synopsis of the colors of the bills and feet in fresh specimens, collected from the labels of the skins in my collection. This is intended to supplement those given in "The Game Birds of California", the authors of which have had to go back as far as Audubon for their information in many cases, and in some cases Audubon has evidently guessed at the colors from the dried specimens. The color of the iris is not added except in a few instances, this being almost invariably very dark brown.

1. *Phalaropus fulicarius*. Red Phalarope. A few coastwise records.
2. *Lobipes lobatus*. Northern Phalarope. Common in the fall and regular migrant. Scarcer in the spring. First fall records, adults, July 15; young, August 8. Bill black; feet gray, livid bluish on inner surface, webs cream color.
3. *Steganopus tricolor*. Wilson Phalarope. Two sight records only.
4. *Recurvirostra americana*. Avocet. A small flock at Okanagan Landing April 28, 1908. Five taken. Iris brown; bill black; feet pale leaden blue.
5. *Gallinago delicata*. Wilson Snipe. Common and breeding throughout the Province in suitable localities. A few winter even in the cold interior.
6. *Macrorhamphus griseus scolopaceus*. Long-billed Dowitcher. Common fall migrant at the coast; scarce in the interior. Rare in spring. Some summer adults have

a conspicuously white central area on the abdomen, but the bills are always slightly longer than the only eastern specimen I have of *M. griseus griseus*, so all are classed as *scolopaceus*. Earliest fall records, adults, July 26; young, August 22. Bill dark olive on basal half; feet greenish, to grayish olive.

7. *Micropalama himantopus*. Stilt Sandpiper. Since my first record of two birds taken at Sumas August 19, 1899, there have been four more records, all at Okanagan Landing; so it may prove to be a regular migrant. Earliest fall record August 8. No adults seen. Bill olive, tip black; feet varying from Roman ochre to yellow ochre, tinged with green.

8. *Tringa canutus*. Knot. This is evidently a coastwise migrant. One record some 100 miles inland—Sumas, August 15, 1890. Bill olive, tip black; feet yellowish.

9. *Arquatella maritima couesi*. Aleutian Sandpiper. The first records of this species were of specimens taken near Massett, Queen Charlotte Islands, by Mr. C. deB. Green in April, 1914. Since then it has been taken many times far to the south of that place (Washington and Oregon); it is probably a regular winter resident along the rocky shores of the coast, and only needs looking for in such localities. Latest spring record for Massett, May 5. Feet olive greenish.

10. *Pisobia aurita*. Sharp-tailed Sandpiper. Two specimens taken at Massett, Queen Charlotte Islands, December 27, 1897, by Rev. J. H. Keen (Provincial Museum Catalogue). One of these which I examined was, curiously, an adult. This would indicate a regular migration down the American coast, as adults rarely lose their bearings. One seen by myself at the mouth of Campbell River, October 4, 1903, was a bird of the year.

11. *Pisobia maculata*. Pectoral Sandpiper. Bowles in *The Auk* (1918, p. 329), gives this species as a tolerably regular and sometimes common fall migrant to the tide-flats and fresh-water marshes in the vicinity of Tacoma. I have derived great comfort from this record as it has always been a source of wonderment to me where the great numbers of this species that I have seen migrating across the 49th Parallel could disappear to. Everywhere just north of that boundary I have found it to be a common and sometimes abundant visitor every fall for the last thirty odd years, though rarer in the spring, and so recorded it in my list of the birds of Chilliwack (*Auk*, January, 1917). In spite of the above records the authors of "The Game Birds of California" say definitely that "the main migration route of the species lies east of the Rocky Mountains and it seems that only a few stragglers, probably birds of the year, occur along the Pacific Coast." See also the A. O. U. Check-list for 1910: "Rare on Pacific coast south of British Columbia, *except in Lower California*" (italics are mine). Earliest fall records, adults, July 28; young, August 7; last spring record, May 22. A curious record, which I hesitated to place as a fall one, is of three adults taken at Sumas, June 14, 1899. Bill dark olive, yellowish at base of lower mandible; feet bright ochre yellow.

12. *Pisobia bairdi*. Baird Sandpiper. This is another species, a common, even abundant, fall migrant throughout southern B. C., that used to do the disappearing act on the 49th Parallel until a few years ago, when it commenced to be recorded regularly to the southward. Though I have seen thousands in the fall, I have only two spring records, and only one record of an adult in the fall. Earliest fall records, adults July 7, young July 26. Bill black; feet dark gray to black.

13. *Pisobia minutilla*. Least Sandpiper. Abundant in the fall, and regular in the spring. Earliest fall records, adults, July 7; young, July 24. Bill dark olive to black; feet dull, to bright, ochre yellow, sometimes tinged with green.

14. *Pelidna alpina sakhalina*. Red-backed Sandpiper. Abundant in the fall and much scarcer in the spring, at Sumas; resident throughout the winter on the coast, no interior records. A very late arrival in the fall; I cannot find any earlier record than October 14. Bill black, feet dark gray to black. I must withdraw my record of *Pelidna alpina alpina* (*Auk*, vol. xxi, p. 290). Dr. Bishop has identified the specimen in question as a small individual of *P. a. sakhalina*. It was identified as *alpina* on the measurements, which are well within those given for the Old World form in Ridgway's *Manual*.

15. *Ereunetes pusillus*. Semipalmated Sandpiper. While this species is tolerably common west of the Cascades on the coast, it becomes common, and at times abundant, east of the Cascade range during the fall migrations. It is another of the

"vanishing species" as far as the western states are concerned, as while I have seen hundreds within a few miles of the International Boundary, it apparently ceases to exist once it leaves British Columbia. If the keen-eyed observers of the States to the southward will look over the flocks of the next species I think this mystery will be solved. Even in life it is very distinct; the short black bill has none of the downward deflection seen in *Ereunetes mauri*, and the back is always grayer. The post-nuptial molt commences much earlier than in other sandpipers. The adults, which form the vanguard of the fall migration, are in nearly complete winter plumage on their arrival here. One taken at Okanagan on July 7 has already acquired most of its gray winter dress. Earliest fall records, adults, July 7; young, July 15. Bill black; feet in adult dark gray to black; in young usually dark gray, sometimes tinged with yellowish, and in some cases greenish gray, bright olive green on front of tarsi.

16. *Ereunetes mauri*. Western Sandpiper. West of the Cascades this sandpiper is abundant in fall and much scarcer in spring. East of that range I have only three records, all in the fall. It does not form one percent of the flocks of *Ereunetes* that pass down the Okanagan Valley every autumn. It seems to be decidedly later; earliest fall record, adults, July 24; young, August 3. Bill black; feet grayish black.

17. *Calidris leucophaea*. Sanderling. Common along the coast; scarce in the interior. Earliest fall record, adult, July 25; young, August 15; late record, November 2 (at Comox). Bill and feet black.

18. *Limosa fedoa*. Marbled Godwit. Almost exclusively confined to the coast. One inland record, Okanagan, August 7, 1910.

19. *Totanus melanoleucus*. Greater Yellow-legs. Common in spring and fall, and breeding in the interior at least as far south as Clinton. Earliest fall record for Okanagan, adults, June 22; young, July 11. Bill olive, black on terminal third; feet yellow, varying from bright ochre yellow and dull maize yellow, to medium cadmium. The inner edge of the primaries is occasionally freckled as in *Helodromas solitarius cinnamomeus*, in one adult even more so.

20. *Totanus flavipes*. Lesser Yellow-legs. Common in fall, scarcer in spring. Earliest fall record, adults, July 9; young, July 26. Soft parts as in *Totanus melanoleucus*.

21. *Helodromas solitarius solitarius*. Solitary Sandpiper. Noted regularly on fall migrations both east and west of the Cascades for the last twenty years. Identification corroborated by Mr. Brewster. The proportion to the western subspecies is as two to five, only those specimens having all the characteristics of the eastern subspecies being classed as *H. s. solitarius*. Earliest fall records, adults, August 10; young, August 5. Bill olive green, tip black; feet pale olive green, in young birds sometimes yellow ochre slightly tinged with green.

22. *Helodromas solitarius cinnamomeus*. Western Solitary Sandpiper. Common in the fall, very much scarcer in spring, throughout southern British Columbia. I have not found it breeding south of lat. 53°. The deep buff spotting of the upperparts is confined to the young birds in first plumage. In these it is probably the best distinction from the eastern subspecies, as the other characters, freckling of inside web of the primaries and absence of the loreal stripe, are not constant. The adult in full spring plumage has the spots white, exactly as in the eastern subspecies; in newly molted fall plumage these are obscure and brownish. In all adults that I have, the freckling of the inside web of the primaries is constant, and the size is consistently larger when birds are compared with the same sex of the eastern subspecies. Earliest fall records for Okanagan, adults, July 7; young, July 19. Color of soft parts as in *H. solitarius solitarius*.

23. *Catoptrophorus semipalmatus inornatus*. Western Willet. One specimen shot at Clover Point near Victoria, August 18, 1898, by Mr. J. Henley (Provincial Museum Catalogue).

24. *Heteractitis incana*. Wandering Tattler. Absolutely confined to the coast line during migrations. Earliest fall records, adults, July 26; young, September 20. Bill blackish olive; feet dull ochre to deep ochre yellow.

25. *Bartramia longicauda*. Upland Plover. This year I found the Upland Plover breeding just west of the Rockies at New-Gate, B. C. (Gateway, Montana); one specimen taken May 30, 1919. It probably breeds sparingly some distance farther west,

as I have heard of its eggs being taken just east of Osoyoos Lake (Mr. C. deB. Green). There are records for migrations from Vancouver Island to the Cariboo district, at various points. Eyelid yellow; bill black on culmen and tip, rest of bill and gape lemon yellow; feet normally pale wax yellow, claws black; in one specimen the feet are pale ochre tinged with flesh color.

26. *Tryngites subruficollis*. Buff-breasted Sandpiper. West of the Cascades, at Sumas, I used to see this sandpiper almost every fall; east of the Cascades, at Okanagan, in much more suitable country, I have not yet seen it. Earliest fall record (young only), August 7. Bill black; feet bright ochre yellow.

27. *Actitis macularia*. Spotted Sandpiper. Summer resident throughout the Province. Bill in adult varying (in individuals) from yellow ochre to pale orange; culmen in winter tinged with dusky, tip at all times black. Feet varying from flesh color to dull greenish yellow. Young, upper mandible grayish olive, lower fleshy gray, tip dusky; feet pale greenish ochre, sometimes grayish flesh color tinged with yellowish.

28. *Numenius americanus*. Long-billed Curlew. Summer resident in open semi-arid areas in the interior as far north as 150-mile House. A scarce transient on the coast. No legislation will save this fine bird, as the bringing under cultivation of its nesting grounds is gradually causing its extermination. The favorite nesting site is a summer fallow, and the eggs are destroyed by the cultivator. The great increase of crows is also a serious factor; these get the eggs and young, and in some districts, where the nesting grounds are still all natural range pasture, these pests have all but exterminated the curlews. Bill in adults dusky brownish, flesh colored on basal half of lower mandible; feet dirty leaden blue. In the young the colors are purer, the basal half of lower mandible being clear purplish pink, the feet clear leaden blue.

29. *Numenius hudsonicus*. Hudsonian Curlew. Common on migrations along coast line; not yet recorded inland. Colors of soft parts as in *Numenius americanus*, the feet averaging duller and grayer.

30. *Squatarola squatarola*. Black-bellied Plover. Common migrant, scarcer inland. Fall records (earliest), adults, August 12; young, August 24. Bill black; feet dark blackish gray.

31. *Charadrius dominicus dominicus*. American Golden Plover. Tolerably common and regular fall migrant; very scarce in the spring, when I have only three records. At Sumas Lake, a few miles north of the Washington boundary, it is especially common in September and October, although I have seen large flocks as far east as the base of the Rocky Mountains at the source of the Columbia River. In the west it seems to be a bird of the mudflats, not of grassy prairies. Earliest fall record, August 19. Bill black; feet dark slate gray.

32. *Charadrius dominicus fulvus*. Pacific Golden Plover. I still have one of the four birds that I took on the 2nd, 3rd and 4th of November, 1903, at Comox, Vancouver Island. It is quite typical of the Asiatic bird in its bright golden plumage, buffy under-surface tinged with yellow, and long tarsi. Measurements, in millimeters, ♀, wing 163, culmen 23, tarsus 44, middle toe with claw 29. Bill black, feet slate gray.

33. *Oxyechus vociferus*. Killdeer. Common resident throughout southern British Columbia. A few remain all winter even in the interior, but are usually driven south, or succumb to the cold. Eyelid scarlet vermilion, more orange in young birds; bill black; feet livid flesh color tinged with bluish; claws dusky.

34. *AEgialitis semipalmata*. Semipalmated Plover. Migrant, not common; coast and interior, breeding as far south at least as the north end of Graham Island, where Mr. C. deB. Green has taken several sets of the handsome eggs. Earliest fall records for southern B. C., adults, July 24; young, August 12. Eyelids yellow in adult and young; bill in adult dull orange on basal half, tip black; in young the orange is abruptly confined to base of lower mandible; anterior aspect of foot and tarsus ochre yellow, posterior orange yellow, claws black.

35. *Aphriza virgata*. Surf-bird. Migrant and possible winter resident on the coast. Earliest fall records, adults, July 24; young, September 2. Bill black or dark blackish olive in adult, base of lower mandible dull orange; feet light olive, sometimes strongly yellowish. Young with bill dark olive, tip black; feet yellowish.

36. *Arenaria interpres morinella*. Ruddy Turnstone. Migrant along the coast-line, very much scarcer than the Black Turnstone. One record for Sumas Lake, Aug-

ust 19, 1899, a young bird. Bill grayish olive on basal half, tip black; feet orange, the joints of toes and tarsi often tinged with dusky, claws dull blackish.

37. *Arenaria melanocephala*. Black Turnstone. Common winter resident; absolutely confined to the sea-coast. Earliest fall records, adults, July 24; young, September 2. Bill black; feet dull reddish in adult, brighter on soles and back of tarsi; in young duller and browner throughout; claws black.

38. *Haematopus bachmani*. Black Oystercatcher. Common resident in suitable localities on the coast. Iris yellow; eyelids vermilion; bill vermilion, tip paler; feet pale whitish flesh color; claws dusky. Downy young, iris brown; bill dark gray, dull orange at gape; feet pale gray.

*Okanagan Landing, British Columbia, August 18, 1919.*

## EDWARD GARNER, A PIONEER NATURALIST

By HAROLD C. BRYANT

**A**LTHOUGH well known only locally, Edward Garner of Quincy, California, was one of the pioneer naturalists of California and must be numbered among the early ornithologists of the state. He was born in England, near London, in 1846, and came to the United States in 1869, settling at Newark, New Jersey. He started for California in 1875, taking in the Centennial Exposition at Philadelphia but came only as far west as Nevada, where he remained for two years, and in which state he cast his first vote as an American citizen. In 1877 he moved to Quincy, Plumas County, California, where he finally settled.

Mr. Garner showed an early interest in natural history, especially entomology, and in 1867, while still in England, he secured an old English work on taxidermy, by Captain Thomas Brown, entitled "The Taxidermist's Manual or The Art of Collecting, Preparing and Preserving Objects of Natural History" (20th ed., A. Fullerton & Co., London, pp. xii+150, 6 pls., 2 figs. in text). With this at hand, about 1878, he began mounting specimens of birds and mammals, devoting only spare time when not engaged in his trade as a painter.

In 1885 his first collection of mounted specimens of birds was sold to the manager of the Plumas House in Quincy, the local hotel, for \$200. Some of these specimens are still to be seen in a glass case in the hotel. With this money Mr. Garner went to San Francisco to take some lessons in taxidermy. Here he met the senior Lorquin, a well-known taxidermist. However, Mr. Garner proved himself already so proficient in taxidermy that, instead of taking a set of lessons, he learned Lorquin's methods simply by watching him while at work. Mr. Garner asserts that what was learned at this time was later discarded for his original methods of procedure.

On his return to Quincy, Mr. Garner began in earnest to build up his private collection. Most of his specimens were acquired during the nineties and consequently now have historical value. In 1915 Plumas County purchased almost the whole of the Garner collection of birds and displayed it at the Panama-Pacific International Exposition. Since the Exposition, it has been on display at the Quincy High School. A few specimens have been donated to Leland Stanford Junior University.